

Amendment to the Claims:

Rewrite the claims as set forth below. This listing of claims replaces all prior versions and listings of claims in the application:

1. (Previously Presented) A video graphics module comprises:

a plurality of video graphics pipelines, wherein each of the plurality of video graphics pipelines is operable to process a corresponding image layer and wherein one of the plurality of video graphics pipelines processes a foremost graphics image layer and the video graphics pipelines is operable to process the corresponding image layers in parallel, wherein each of the foremost graphics image layer and the corresponding image layers are operatively received from at least one frame buffer; and

a blending module operably coupled to the plurality of video graphics pipelines, wherein the blending module is operable to blend the corresponding image layers in a predetermined blending order, thereby creating an intermediate blended image, and blending the intermediate blended image with the foremost graphics image layer, to produce an output image having the foremost graphics image layer blended in a foremost position with respect to the other corresponding image layers with negligible loss of information of the other corresponding image layers, wherein the blending module is selectively controllable to blend the intermediate blended image with the foremost graphics image layer in accordance with an alpha blending convention or an AND/XOR blending convention;

wherein the blending module comprises a first mixing module and a second mixing module, wherein the first mixing module is operable to blend at least two of the corresponding image layers to produce the intermediate blended image, and wherein the second mixing module is operable to blend the foremost graphics image layer with the intermediate blended image.

2. (Previously Presented) The video graphics module of claim 1, wherein the blending module is operable to blend the corresponding image layers in a predetermined blending order using one of: AND/XOR blending and alpha blending.

3. (Previously Presented) The video graphics module of claim 2, wherein the blending module is operable to blend the corresponding image layers using alpha blending and a specified per pixel alpha value or a global alpha value, wherein the alpha blending is performed using one of a plurality of pixel depths.

4. (Previously Presented) The video graphics module of claim 2, wherein the blending module is operable to blend the corresponding image layers using AND/XOR blending and one of a plurality of pixel depths.

5–6. (Cancelled)

7. (Currently Amended) The video graphics module of claim [[6]] 1, wherein the first mixing module further comprises:

a first input for receiving one of the at least two of the corresponding image layers;

a second input for receiving another one of the at least two of the corresponding image layers;

a blending module operably coupled to blend the at least two of the corresponding image layers based on an alpha calculation using a specified alpha value; and

an alpha value calculation module operably coupled to the blending module, wherein the alpha value calculation module generates the specified alpha value based on at least one of: a global alpha value, a per pixel value associated with at least one of the at least two of the corresponding image layers, and a blending mode selection.

8. (Currently Amended) The video graphics module of claim [[6]] 1, wherein the second mixing module further comprises:

a first input for receiving the intermediate blended image;

a second input for receiving the foremost graphics image layer; and

wherein the blending module is operable to blend the intermediate blended image and the foremost image layer based on a mixing selection to produce the output image.

9. (Original) The video graphics module of claim 1, wherein each of the corresponding image layers has a color base of at least one of: an RGB color base and a YUV color base.

10. (Previously Presented) The video graphics module of claim 9, wherein the one of the plurality of video graphics pipelines that is operable to process the foremost graphics image layer is further operable to produce a first foremost graphics image layer having the RGB color base and a second foremost image layer having the YUV color base.

11. (Previously Presented) The video graphics module of claim 9, wherein the plurality of video pipelines operable to process the corresponding image layers is further operable to produce the corresponding image layers having the RGB color base, and wherein the blending module further comprises:

an RGB blending module operably coupled to produce the output image having the RGB color base;

an RGB to YUV conversion module operably coupled to convert corresponding image layers to have the YUV color base, and

a YUV blending module operably coupled to produce the output image having the YUV color base based at least on the corresponding image layers having the YUV color base.

12. (Currently Amended) A video graphics module comprises:
a video graphics pipeline module operable to process at least one image layer;
a hardware cursor pipeline operable to process a cursor image;
wherein the at least one image layer and the cursor image are operably received from a frame buffer; and
a blending circuit operably coupled to the video graphics pipeline and the hardware cursor pipeline, wherein the blending circuit is operable to blend, in accordance with an alpha blending convention, the at least one image layer and the cursor image, to produce an output image having the cursor image alpha blended in a foremost position with respect to the at least one corresponding image layer;

wherein the blending circuit comprises a first mixing module and a second mixing module, wherein the first mixing module is operable to blend the at least one image layer to produce an intermediate blended image, and wherein the second mixing module is operable to blend the cursor image with the intermediate blended image.

13. (Cancelled)

14. (Previously Presented) The video graphics module of claim 12, wherein the blending circuit is operable to blend the at least one image layer and the cursor image using a specified per pixel alpha value or a global alpha value, and further using one of a plurality of pixel depths.

15. (Cancelled)

16. (Currently Amended) The video graphics module of claim 12, wherein the at least one image layer includes a plurality of image layers, wherein the blending circuit is operable to blend the plurality of images layers and the cursor image layer in a predetermined blending order, wherein the predetermined blending order further comprises blending at least two of the plurality of image layers to produce [[an]] the intermediate blended image, and subsequently blending the cursor image layer with the intermediate blended image.

17. (Currently Amended) The video graphics module of claim 16, ~~wherein the blending circuit further comprises a first mixing module and a second mixing module~~, wherein the first mixing module is operable to blend the at least two of the plurality of image layers to produce the intermediate blended image, and wherein the second mixing module is operable to blend the cursor image layer with the intermediate blended image.

18. (Original) The video graphics module of claim 17, wherein the first mixing module further comprises:

a first input for receiving one of the at least two of the plurality of image layers;

a second input for receiving another one of the at least two of the plurality of image layers:

a blending module operably coupled to blend the at least two of the plurality of image layers based on an alpha calculation using a specified alpha value; and

an alpha value calculation module operably coupled to the blending module, wherein the alpha value calculation module generates the specified alpha valued based on at least one of: a global alpha value, a per pixel value associated with at least one of the at least two of the image layers, and a non-alpha blend mode.

19. (Previously Presented) The video graphics module of claim 17, wherein the second mixing module further comprises:

- a first input for receiving the intermediate blended image;
- a second input for receiving the cursor image layer; and
- a blending module operable to alpha blend the intermediate blended image and the cursor image layer to produce the output image.

20. (Previously Presented) The video graphics module of claim 12, wherein the blending circuit further comprises:

- a first input for receiving the at least one image layer;
- a second input for receiving the cursor image layer; and
- a blending module operable to alpha blend the at least one image layer and the cursor image layer to produce the output image.

21. (Original) The video graphics module of claim 12, wherein the at least one image layer and the cursor image each has a color base of at least one of: an RGB color base and a YUV color base.

22. (Cancelled)

23. (Previously Presented) The video graphics module of claim 21, wherein the video graphics pipeline is operable to process the at least one image layer to have the RGB color base, wherein the hardware cursor pipeline is operable to process the cursor image to have the RGB color base, and wherein the blending module further comprises:

- an RGB blending module operably coupled to produce the output image having the RGB color base;

an RGB to YUV conversion module operably coupled to convert the at least one image layer and the cursor image to each have the YUV color base, and

a YUV blending module operably coupled to produce the output image having the YUV color base from the at least one image layer having the YUV color base and the cursor image having the YUV color base.

24. (Cancelled)

25. (Previously Presented) The apparatus of claim 33, wherein the memory further comprises operational instructions that cause the processing module to, when the alpha blending mode indicates using the global alpha blending value, retrieve at least one global alpha value from a general alpha register.

26. (Previously Presented) The apparatus of claim 33, wherein the memory further comprises operational instructions that cause the processing module to, when the alpha blending mode indicates using the per pixel alpha blending value, retrieve at least one corresponding per pixel alpha blending value from an image layer input.

27. (Previously Presented) The apparatus of claim 33, wherein the memory further comprises operational instructions that cause the processing module to, when the alpha blending mode indicates using the key alpha blending value, retrieve an alpha key indication from a keyer, wherein the keyer generates the alpha key indication from at least one corresponding per pixel alpha value associated with an image layer input.

28. (Currently Amended) A video graphics data blending circuit comprises:

a first video graphics pipeline operable to produce a first image layer based on corresponding first image layer data from at least one frame buffer;

a second video graphics pipeline operable to produce a second image layer based on corresponding second image layer data from the at least one frame buffer;

a third video graphics pipeline operable to produce a third graphics image layer based on corresponding graphics image data from the at least one frame buffer;

a first blending module operable to blend the first and second image layers based on an alpha calculation using a specified alpha value to generate an intermediate blended image;

an alpha value calculation module operably coupled to the first blending module, wherein the alpha value calculation module generates the specified alpha valued based on at least one of: a global alpha value, a per pixel value associated with at least one of the first and second image layers, and a non-alpha blend mode; and

a second blending module operable to blend the intermediate blended image with the third graphics image layer using alpha blending to produce an output image such that the graphics image layer has a foremost position in the output image.

29. (Original) The video graphics data blending circuit of claim 28, wherein the alpha value calculation module further comprises firmware that, for the non-alpha blend mode,

detects a color key in at least one of the first and second image layers to produce a color key result, and

generates the specified alpha value as a fully transparent value or a fully opaque value based on the color key result.

30. (Currently Amended) The video graphics data blending circuit of claim 28, wherein the first blending module further comprises firmware for performing the blending of the first and second image layers using a premultiplied alpha blending process or a non-premultiplied alpha blending process.

31. (Original) The video graphics data blending circuit of claim 28 further comprises a first multiplexor operably coupled to the first input and a second multiplexor operably coupled to the second input, wherein the first multiplexor is operably coupled to receive a plurality of image layers and to output the first image layer and the second multiplexor is operably coupled to receive the plurality of image layers and output the second image layer.

32. (Original) The video graphics data blending circuit of claim 31, wherein the alpha value calculation module further comprises firmware that provides control information to the first and second multiplexors such that the first multiplexor outputs the first image layer and the second multiplexor outputs the second image layer.

33. (Previously Presented) An apparatus for determining an alpha calculation mode, the apparatus comprises:

a blending module operative to:

receive a first image layer from a first video graphics pipeline wherein the first image layer is based on corresponding first image layer data from at least one frame buffer;

receive a second image layer in parallel with the first image layer from a second video graphics pipeline wherein the second image layer is based on corresponding second image layer data from the at least one frame buffer; and

receive a graphics image layer from a third video graphics pipeline wherein the graphics image layer is based on corresponding graphics image data from the at least one frame buffer;

a processing module;

memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to (a) determine an alpha blending mode from a plurality of modes, wherein each of the plurality of modes corresponds to at least one of utilizing a per pixel alpha blending value, utilizing a global alpha blending value, and utilizing a key alpha blending value; (b) obtain blending information based on the alpha blending mode; (c) generate a corresponding blending value based on the blending information; and (d) provide the corresponding blending value to the blending module;

wherein the blending module is further operable to blend the first and second image layers based on an alpha calculation using the corresponding alpha value to generate an intermediate blended image; and

wherein the blending module is further operable to blend the intermediate blended image with the graphics image layer using alpha blending to produce an output image such that the graphics image layer has a foremost position in the output image.